C# Programming Reference Sheet

Built In Data Types & Literals

Integers
```
Int (e.g. 17, 7, 27)
```
Floating Point Numbers
```
Float, double (e.g. 17.27, 17.2)
```
Strings and Characters
```
String, char (e.g. "Hello, world", 't'
```
Boolean
```
Bool (e.g. true or false)
```

Working with Strings

Assignment (giving a string a value)
```
string new_var = "Hi, how are you? ";
```
Concatenation (joining strings)
```
string new_var = "Hi, " + "how are you";
```
Comparison
```
a == 3
```
Construction from other types:
```
int new_variable = int.Parse("123");
```

Simple Programming Statements

Constant declaration
```
Const int hours_per_day = 24;
```
Variable declaration
```
String var = "Hello, how are you? ";
```
Assignment
```
x = 17;
```
Method call
```
<access specifier><return data type><method
name><parameter(s)>{statement;}
```
Sequence of statements - grouped
```
Class Main{}
```

Structured Programming Statements

If statement
```
if (true condition) then {statement;}
```
Case statement
```
switch variable {case 1;
Console.WriteLine("Hi");break;default:
break;}
```
While loop
```
while (correct statement) {statement;}
```
Repeat loop
```
do {statement;} while (condition);
```
For loop
```
for (int i = 0, i<5, i++){statement;}
```

Declaring Methods

Declare a method with parameters:
```
public void greetings(string name)
{Console.WriteLine(name);
Return;}
```
Declare a method that returns data:
```
public int subtraction(int a, int b)
{return a - b;}
```
Pass by reference:
```
int num = 2;
squareReference(ref num);
Console.WriteLine(num);
```

Boolean Operators and Other Statements

Comparison: equal, less, larger, not equal, less eq
```
equal(==), less(<),larger(>),not
equal(!=),less equal (<=)
```
Boolean: And, Or and Not
```
and(&&), or(||), not(!)
```
Skip an iteration of a loop
```
continue;
```
End a loop early
```
break;
```
End a method:
```
Return;
```

Custom Types

Classes
```
public class Person{}
```
Enumerations
```
enum Grades{Pass, Credit, Distinction, High
Distinction}
```
Structs
```
struct Student
{private string name; private float GPA;}
```

Arrays

Declaration
```
int[] arr;
```
Access
```
arr[0] = 1;
```
Loop with index i
```
for(int i=0, i<2, i++)
{Console.WriteLine(arr[i]);}
```
For each loop
```
foreach(int number in arr)
{Console.WriteLine(number);}
```

Programs and Modules

Creating a program
```
Class Main{
  public static void Main(){
      statement;
      }
}
```
Using a class from a library
```
using myLibrary;
public void drawRec(){
myLibrary.rec(color);
}
```

Other Things

Reading from Terminal
```
Console.ReadLine();
```
Writing to Terminal
```
Console.WriteLine();
```
Comments
```
//this is the comment
```